FAG

# LOCKNUT-DOUBLEHOOK

## Double hook wrenches
## User manual

SCHAEFFLER

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# Double hook wrenches

## About the user manual

This user manual is part of the device and contains important information.

## Symbols

The warning and hazard symbols are defined in accordance with ANSI Z535.6-2006.

**WARNING** In case of non-compliance, death or serious injury may occur. ◁

***NOTICE*** In case of non-compliance, damage or malfunctions in the product or the adjacent construction will occur. ◁

## Availability

This user manual is supplied with each device and can also be ordered retrospectively.

***NOTICE*** Damage to the bearing to be mounted since information that is important for correct adjustment is missing as a result of a user manual that is incomplete, illegible or missing.

As the safety coordinator, you must ensure that this user manual is always complete and legible and that any persons using the device have the user manual available. ◁

## Legal guidelines

The information in this manual corresponded to the most recent status at the close of editing. The illustrations and descriptions cannot be used as grounds for any claims relating to devices that have already been delivered. Schaeffler Technologies AG & Co. KG accepts no liability for any damage or malfunctions if the device or accessories have been modified or used in an inappropriate manner.

## Original user manual

The original user manual is taken to be a user manual in the German language. A user manual in another language is to be taken as a translation of the original user manual.

## General safety guidelines

It describes how the device may be used, who may use the device and what must be observed when using the device.

## Usage for the intended purpose

A double hook wrench with a torque wrench and mounting lever is used for its intended purpose when it is used to set radial internal clearance during the mounting of self-aligning ball bearings and spherical roller bearings with a tapered inner ring on an adapter sleeve.

## Usage not for the intended purpose

The torque wrench must not be used to loosen tightened connections. It must not be used as an impact tool.

Usage not for the intended purpose can lead to injury or damage.

## Qualified personnel

The double hook wrench, torque wrench and mounting lever may only be used by qualified personnel.

A person defined as qualified personnel:

- has all the necessary knowledge
- is aware of all the hazards and safety guidelines
- has been authorised to use the double hook wrench, torque wrench and mounting lever by the safety co-ordinator
- has fully read and understood this user manual.

## Hazards

If a tool is damaged, it may break when subjected to load.
For this reason, only an undamaged tool may be used and repairs to the tool are prohibited.

## Protective equipment

Personal protective equipment is intended to protect operating personnel against health hazards. This comprises safety shoes, safety gloves and protective goggles and these must be used in the interests of personal safety.

## Safety specifications

The following safety specifications must be observed when using the double hook wrench, torque wrench and mounting lever. Further guidelines on hazards and specific operating procedures can be found, for example, in section *Operation*, page 9.

**Transport**

If the ambient conditions during transport of the tool differ to a large extent from the ambient conditions specified for its use, the tool must not be used immediately.

**Storage**

The double hook wrench, torque wrench and mounting lever must always be stored under the ambient conditions described.

These ambient conditions are as follows:

- humidity max. 90%, non-condensing
- no aggressive chemicals in the environment
- temperature from +5 °C to +40 °C.

Unsuitable ambient conditions may result in corrosion of the double hook wrench, torque wrench and mounting lever.

**Operation**

The double hook wrench, torque wrench and mounting lever may only be used under the ambient conditions described.

These ambient conditions are as follows:

- humidity max. 70%, non-condensing
- no aggressive chemicals in the environment
- temperature from +15 °C to +25 °C
- brightness at least 500 Lux.

Unsuitable ambient conditions may result in health hazards to the operating personnel.

Only original replacement parts may be used.

**Maintenance**

Regular maintenance must be carried out on the torque wrench.

**Disposal**

Locally applicable regulations must be observed.

**Conversion**

The double hook wrench, torque wrench and mounting lever must not be converted.

## Scope of delivery

The scope of delivery comprises the double hook wrench, torque wrench, mounting lever, transport case, mounting paste and user manual, see *table* and *Figure 1* as well as *table* and *Figure 2*, page 6.

**Scope of delivery**
**Double hook wrench set**
**LOCKNUT-DOUBLEHOOK-KM3-8-SET**

| Component | Designation | m[1)] kg |
|---|---|---|
| Torque wrench | **LOCKNUT-DOUBLEHOOK.WRENCH10-50NM** | 1,1 |
| Double hook wrench | **LOCKNUT-DOUBLEHOOK-KM3-D16** | 0,2 |
| | **LOCKNUT-DOUBLEHOOK-KM4-D16** | 0,2 |
| | **LOCKNUT-DOUBLEHOOK-KM5-D16** | 0,2 |
| | **LOCKNUT-DOUBLEHOOK-KM6-D16** | 0,2 |
| | **LOCKNUT-DOUBLEHOOK-KM7-D16** | 0,2 |
| | **LOCKNUT-DOUBLEHOOK-KM8-D16** | 0,3 |
| Mounting lever | **LOCKNUT-DOUBLEHOOK.LEVER400** | 0,8 |
| Transport case | **LOCKNUT-DOUBLEHOOK.CASE-KM3-8** | 3 |
| Mounting paste | **ARCANOL-MOUNTINGPASTE-70G** | 0,1 |
| User manual | MATNR 032821409-0000 | – |

1) Mass.

① Torque wrench WRENCH10-50NM
② Double hook wrench KM3
③ Double hook wrench KM4
④ Double hook wrench KM5
⑤ Double hook wrench KM6
⑥ Double hook wrench KM7
⑦ Double hook wrench KM8
⑧ Mounting lever
⑨ Transport case
⑩ Mounting paste
⑪ User manual

*Figure 1*
Scope of delivery
Double hook wrench set KM3-8

# Double hook wrenches

**Scope of delivery**
**Double hook wrench set LOCKNUT-DOUBLEHOOK-KM9-15-SET**

| Component | Designation | m[1)] kg |
|---|---|---|
| Torque wrench | **LOCKNUT-DOUBLEHOOK.WRENCH20-100NM** | 2,3 |
| Adapter | **LOCKNUT-DOUBLEHOOK.WRENCH-ADAPTER22-16** | 0,1 |
| Double hook wrench | **LOCKNUT-DOUBLEHOOK-KM9-D20** | 0,4 |
| | **LOCKNUT-DOUBLEHOOK-KM10-D20** | 0,4 |
| | **LOCKNUT-DOUBLEHOOK-KM11-D20** | 0,4 |
| | **LOCKNUT-DOUBLEHOOK-KM12-D20** | 0,4 |
| | **LOCKNUT-DOUBLEHOOK-KM13-D20** | 0,4 |
| | **LOCKNUT-DOUBLEHOOK-KM14-D20** | 0,4 |
| | **LOCKNUT-DOUBLEHOOK-KM15-D20** | 0,4 |
| Mounting lever | **LOCKNUT-DOUBLEHOOK.LEVER400** | 0,8 |
| Transport case | **LOCKNUT-DOUBLEHOOK.CASE-KM9-15** | 3 |
| Mounting paste | **ARCANOL-MOUNTINGPASTE-70G** | 0,1 |
| User manual | MATNR 032821409-0000 | – |

1) Mass.

① Torque wrench
② Adapter
③ Double hook wrench KM9
④ Double hook wrench KM10
⑤ Double hook wrench KM11
⑥ Double hook wrench KM12
⑦ Double hook wrench KM13
⑧ Double hook wrench KM14
⑨ Double hook wrench KM15
⑩ Mounting lever
⑪ Transport case
⑫ Mounting paste
⑬ User manual

*Figure 2*
Scope of delivery
Double hook wrench set KM9-15

## Accessories

Individual parts are supplied without accessories. For accessories such as mounting paste, see section *Technical data and accessories*, page 22.

## Damage during transit

Any damage during transit must be reported as a complaint to the carrier.

## Defects

Any defects must be reported promptly to Schaeffler Technologies AG & Co. KG.

## Description

The method described in this manual, in conjunction with the appropriate tool, can be used to achieve precise setting of the radial internal clearance of self-aligning ball bearings and spherical roller bearings without the need to measure the radial internal clearance.

## Overview

Reduction of the radial internal clearance requires the use of a double hook wrench, torque wrench and mounting lever, *Figure 3*.

① Double hook wrench
② Marking of torsion angle
③ Hole for locking pin
④ Torque wrench
⑤ Adapter
⑥ Locking pin
⑦ Mounting lever

*Figure 3*
Tool

**Double hook wrench**

This is made from steel and is marked with values for standardised torsion angles.

**Torque wrench**

This is made from steel and plastic and must be subjected to regular maintenance.

**Adapter**

This is made from steel and is used to change the locating diameter. The adapter is supplied already fitted to the torque wrench WRENCH20-100NM.

**Mounting lever**

This is made from steel and can be inserted in the double hook wrench in the same way as the torque wrench.

# Double hook wrenches

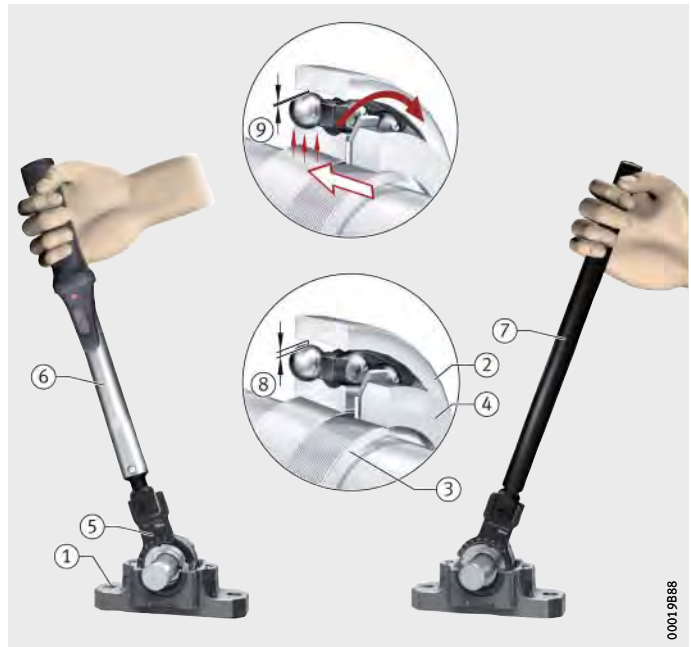
## Function

Measurement of the radial internal clearance is difficult especially in the case of smaller self-aligning ball bearings and spherical roller bearings. If the bearing is fitted in a housing, it is not possible to measure the radial internal clearance in some cases.

As a result, measurement is often dispensed with and the radial internal clearance is estimated in approximate terms by means of the method normally used in the past. In this case, the rolling bearing is pressed onto the adapter sleeve until the outer ring can still be freely rotated and slight resistance is felt under swivelling.

With the method we recommend, the radial internal clearance can be set very accurately. The radial internal clearance is reduced in two stages, *Figure 4*. First, the locknut is lightly tightened to a specified tightening torque. This gives a precisely defined initial position and the radial internal clearance is then set very accurately in the second stage.

The locknut is then tightened by a defined angle. The radial internal clearance has now been reduced by the recommended 60% to 70%.




① Housing
② Self aligning ball bearing
③ Adapter sleeve
④ Locknut
⑤ Double hook wrench
⑥ Torque wrench
⑦ Mounting lever
⑧ Radial internal clearance, locknut lightly tightened
⑨ Radial internal clearance, locknut completely tightened

*Figure 4*
Reducing the radial internal clearance

## Operation

Mounting is carried out at a suitable location:

- sufficiently strong illumination
- ergonomic working height for the fitter.

## Preparation

The torque wrench may only be used if it has been subjected to correct maintenance, see section *Maintenance*, page 21. Based on the bearing to be mounted, the tool to be used and the tightening torque to be applied can be determined from the tables, see *table*, page 11.

**NOTICE**

Incorrect friction value due to contamination. This leads to in correct setting of the bearing radial internal clearance and thus wear of the bearing.

Clean the parts to be mounted thoroughly using a lint-free cloth.◁

**NOTICE**

Damage to the bearing during dismounting if the locknut has cold welded to the adapter sleeve.

Apply a thin coating of mounting paste to the thread of the adapter sleeve, for example using ARCANOL-MOUNTINGPASTE-70G.◁

**Preparing the tool and parts**

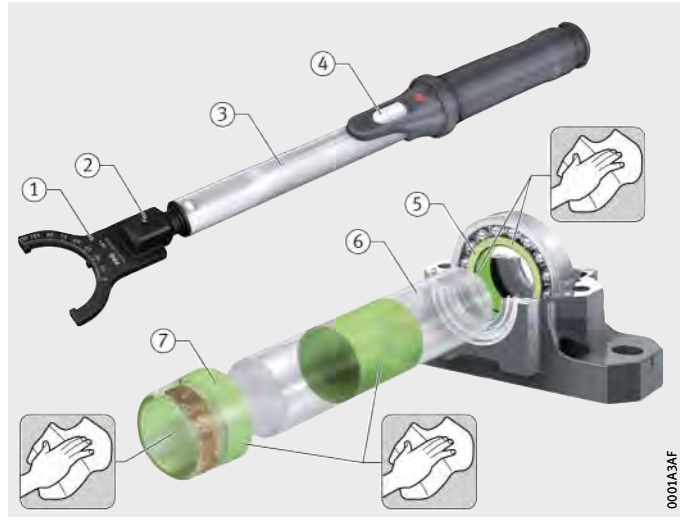
Before mounting, the tool and the parts to be mounted must be prepared, *Figure 5*:

- double hook wrench fitted to the torque wrench
- tightening torque set on the torque wrench
- cleaned using a lint-free cloth:
  - bore and end faces of the bearing inner ring, the part of the shaft on which the adapter sleeve will be mounted, adapter sleeve
- thin coating of mounting paste applied to the thread of the adapter sleeve.

**NOTICE**

Danger of injury if the double hook wrench becomes detached from the torque wrench or mounting lever.

Ensure that the locking pin fully engages when the double hook wrench is attached. ◁




① Double hook wrench
② Locking pin engaged
③ Torque wrench
④ Display of tightening torque
⑤ Bearing inner ring
⑥ Shaft
⑦ Adapter sleeve

*Figure 5*
Tool and parts to be mounted

## Self-aligning ball bearings
## Tools, values

| Designation | Nut of adapter sleeve | LOCKNUT-DOUBLEHOOK- | | Tightening torque Nm | Torsion angle ° |
|---|---|---|---|---|---|
| | | Double hook wrench | Torque wrench | | |
| **1203-K** | KM3 | KM3-D16 | WRENCH10-50NM | 10 | – |
| **2203-K** | KM3 | KM3-D16 | WRENCH10-50NM | 10 | – |
| **1303-K** | KM3 | KM3-D16 | WRENCH10-50NM | 16 | – |
| **2303-K** | KM3 | KM3-D16 | WRENCH10-50NM | 16 | – |
| **1204-K** | KM4 | KM4-D16 | WRENCH10-50NM | 14 | – |
| **2204-K** | KM4 | KM4-D16 | WRENCH10-50NM | 14 | – |
| **1304-K** | KM4 | KM4-D16 | WRENCH10-50NM | 24 | – |
| **2304-K** | KM4 | KM4-D16 | WRENCH10-50NM | 24 | – |
| **1205-K** | KM5 | KM5-D16 | WRENCH10-50NM | 23 | – |
| **2205-K** | KM5 | KM5-D16 | WRENCH10-50NM | 22 | – |
| **1305-K** | KM5 | KM5-D16 | WRENCH10-50NM | 42 | – |
| **2305-K** | KM5 | KM5-D16 | WRENCH10-50NM | 18 | 30 |
| **1206-K** | KM6 | KM6-D16 | WRENCH10-50NM | 36 | – |
| **2206-K** | KM6 | KM6-D16 | WRENCH10-50NM | 34 | – |
| **1306-K** | KM6 | KM6-D16 | WRENCH10-50NM | 37 | 30 |
| **2306-K** | KM6 | KM6-D16 | WRENCH10-50NM | 33 | 30 |
| **1207-K** | KM7 | KM7-D16 | WRENCH10-50NM | 34 | 30 |
| **2207-K** | KM7 | KM7-D16 | WRENCH10-50NM | 31 | 30 |
| **1307-K** | KM7 | KM7-D16 | WRENCH10-50NM | 40 | 45 |
| **2307-K** | KM7 | KM7-D16 | WRENCH10-50NM | 49 | 30 |
| **1208-K** | KM8 | KM8-D16 | WRENCH10-50NM | 22 | 60 |
| **2208-K** | KM8 | KM8-D16 | WRENCH10-50NM | 20 | 60 |
| **1308-K** | KM8 | KM8-D16 | WRENCH10-50NM | 41 | 60 |
| **2308-K** | KM8 | KM8-D16 | WRENCH10-50NM | 32 | 60 |

# Double hook wrenches

**Self-aligning ball bearings**
**Tools, values**
(continued)

| Desig-nation | Nut of adapter sleeve | LOCKNUT-DOUBLEHOOK- | | Tightening torque | Torsion angle |
|---|---|---|---|---|---|
| | | Double hook wrench | Torque wrench | Nm | ° |
| **1209-K** | KM9 | KM9-D20 | WRENCH20-100NM | 27 | 60 |
| **2209-K** | KM9 | KM9-D20 | WRENCH20-100NM | 36 | 60 |
| **1309-K** | KM9 | KM9-D20 | WRENCH20-100NM | 65 | 60 |
| **2309-K** | KM9 | KM9-D20 | WRENCH20-100NM | 57 | 60 |
| **1210-K** | KM10 | KM10-D20 | WRENCH20-100NM | 27 | 60 |
| **2210-K** | KM10 | KM10-D20 | WRENCH20-100NM | 35 | 60 |
| **1310-K** | KM10 | KM10-D20 | WRENCH20-100NM | 77 | 60 |
| **2310-K** | KM10 | KM10-D20 | WRENCH20-100NM | 64 | 60 |
| **1211-K** | KM11 | KM11-D20 | WRENCH20-100NM | 22 | 60 |
| **2211-K** | KM11 | KM11-D20 | WRENCH20-100NM | 21 | 60 |
| **1311-K** | KM11 | KM11-D20 | WRENCH20-100NM | 66 | 60 |
| **2311-K** | KM11 | KM11-D20 | WRENCH20-100NM | 43 | 60 |
| **1212-K** | KM12 | KM12-D20 | WRENCH20-100NM | 45 | 60 |
| **2212-K** | KM12 | KM12-D20 | WRENCH20-100NM | 44 | 60 |
| **1312-K** | KM12 | KM12-D20 | WRENCH20-100NM | 60 | 75 |
| **2312-K** | KM12 | KM12-D20 | WRENCH20-100NM | 70 | 60 |
| **1213-K** | KM12 | KM12-D20 | WRENCH20-100NM | 36 | 75 |
| **2213-K** | KM12 | KM12-D20 | WRENCH20-100NM | 25 | 75 |
| **1313-K** | KM13 | KM13-D20 | WRENCH20-100NM | 92 | 75 |
| **2313-K** | KM13 | KM13-D20 | WRENCH20-100NM | 60 | 75 |
| **1214-K** | KM14 | KM14-D20 | WRENCH20-100NM | 38 | 75 |
| **2214-K** | KM14 | KM14-D20 | WRENCH20-100NM | 47 | 75 |
| **1314-K** | KM14 | KM14-D20 | WRENCH20-100NM | 52 | 90 |
| **2314-K** | KM14 | KM14-D20 | WRENCH20-100NM | 100 | 75 |
| **1215-K** | KM15 | KM15-D20 | WRENCH20-100NM | 59 | 75 |
| **2215-K** | KM15 | KM15-D20 | WRENCH20-100NM | 66 | 75 |
| **1315-K** | KM15 | KM15-D20 | WRENCH20-100NM | 98 | 90 |
| **2315-K** | KM15 | KM15-D20 | WRENCH20-100NM | 75 | 90 |

## Spherical roller bearings
## Tools, values

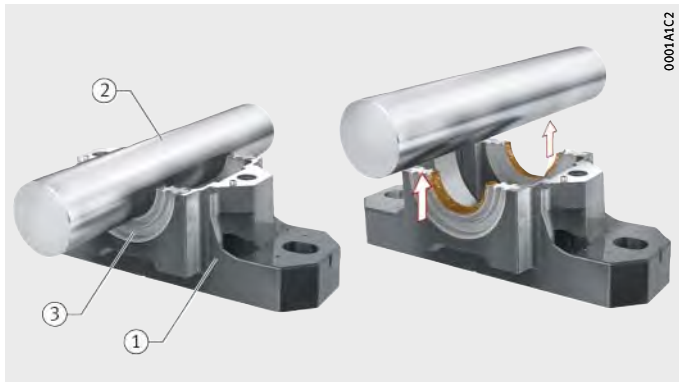
| Desig-nation | Nut of adapter sleeve | LOCKNUT-DOUBLEHOOK- | | Tightening torque | Torsion angle |
|---|---|---|---|---|---|
| | | Double hook wrench | Torque wrench | Nm | ° |
| **22205-K** | KM5 | KM5-D16 | WRENCH10-50NM | 18 | 30 |
| **22306-K** | KM5 | KM5-D16 | WRENCH10-50NM | 35 | 75 |
| **22307-K** | KM5 | KM5-D16 | WRENCH10-50NM | 35 | 75 |
| **21304-K** | KM5 | KM5-D16 | WRENCH10-50NM | 24 | – |
| **21305-K** | KM5 | KM5-D16 | WRENCH10-50NM | 42 | – |
| **22206-K** | KM6 | KM6-D16 | WRENCH10-50NM | 33 | 30 |
| **21306-K** | KM6 | KM6-D16 | WRENCH10-50NM | 40 | 30 |
| **22207-K** | KM7 | KM7-D16 | WRENCH10-50NM | 24 | 60 |
| **21307-K** | KM7 | KM7-D16 | WRENCH10-50NM | 26 | 60 |
| **22208-K** | KM8 | KM8-D16 | WRENCH10-50NM | 34 | 60 |
| **21308-K** | KM8 | KM8-D16 | WRENCH10-50NM | 27 | 75 |
| **22308-K** | KM8 | KM8-D16 | WRENCH10-50NM | 35 | 75 |
| **22209-K** | KM9 | KM9-D20 | WRENCH20-100NM | 51 | 60 |
| **21309-K** | KM9 | KM9-D20 | WRENCH20-100NM | 25 | 90 |
| **22309-K** | KM9 | KM9-D20 | WRENCH20-100NM | 70 | 75 |
| **22210-K** | KM10 | KM10-D20 | WRENCH20-100NM | 62 | 60 |
| **21310-K** | KM10 | KM10-D20 | WRENCH20-100NM | 53 | 90 |
| **22310-K** | KM10 | KM10-D20 | WRENCH20-100NM | 96 | 75 |
| **22211-K** | KM11 | KM11-D20 | WRENCH20-100NM | 44 | 75 |
| **21311-K** | KM11 | KM11-D20 | WRENCH20-100NM | 19 | 90 |
| **22311-K** | KM11 | KM11-D20 | WRENCH20-100NM | 68 | 75 |
| **22212-K** | KM12 | KM12-D20 | WRENCH20-100NM | 38 | 85 |
| **21312-K** | KM12 | KM12-D20 | WRENCH20-100NM | 51 | 90 |
| **22312-K** | KM12 | KM12-D20 | WRENCH20-100NM | 67 | 85 |
| **22213-K** | KM13 | KM13-D20 | WRENCH20-100NM | 82 | 85 |
| **21313-K** | KM13 | KM13-D20 | WRENCH20-100NM | 91 | 90 |
| **22313-K** | KM13 | KM13-D20 | WRENCH20-100NM | 59 | 100 |
| **22214-K** | KM14 | KM14-D20 | WRENCH20-100NM | 62 | 100 |
| **21314-K** | KM14 | KM14-D20 | WRENCH20-100NM | 98 | 100 |
| **22314-K** | KM14 | KM14-D20 | WRENCH20-100NM | 88 | 100 |
| **22215-K** | KM15 | KM15-D20 | WRENCH20-100NM | 87 | 100 |
| **21315-K** | KM15 | KM15-D20 | WRENCH20-100NM | 78 | 115 |
| **22315-K** | KM15 | KM15-D20 | WRENCH20-100NM | 85 | 110 |

## Mounting of parts

Once all the parts to be mounted have been cleaned and a thin coating of mounting paste has been applied to the thread of the adapter sleeve, the parts can be mounted.

Inserting and greasing the seals:

- ▶ Press the lower halves of the seals finger tight into the housing and grease the space between the seal lips.
- ▶ Place the shaft at the required position and lift it up.



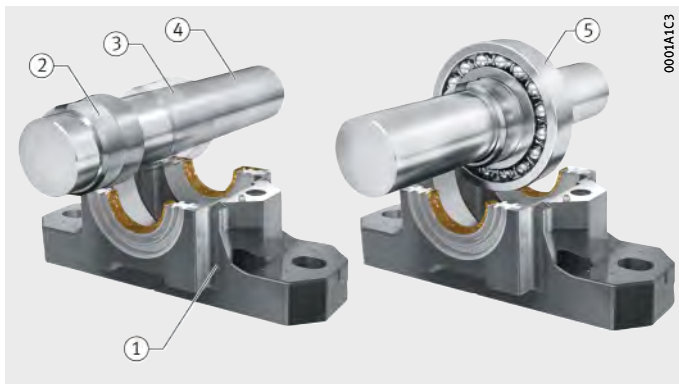

① Housing
② Shaft
③ Seal, lower half

*Figure 6*
Seal

While sliding the bearing onto the shaft, ensure that the adapter sleeve remains at the required position.

Mounting the adapter sleeve and bearing:

- ▶ Slide the adapter sleeve to the required position on the shaft.
- ▶ Slide the bearing onto the adapter sleeve.



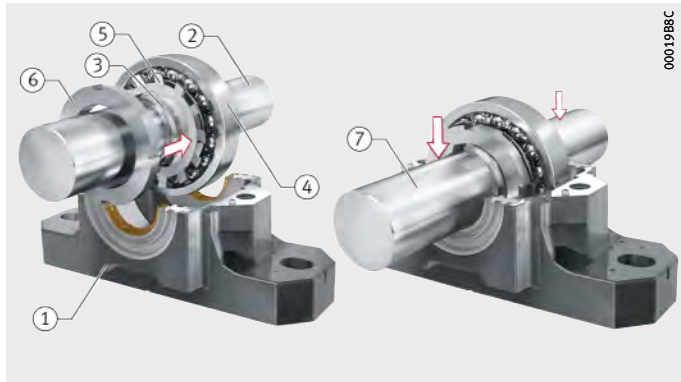

① Housing
② Shaft
③ Adapter sleeve
④ Required position of adapter sleeve
⑤ Bearing

*Figure 7*
Adapter sleeve and bearing

The tab washer should lie against the end face of the bearing inner ring. The locknut should lie lightly against the tab washer.

Mounting the tab washer and locknut:

- ▶ Slide the tab washer onto the adapter sleeve.
- ▶ Screw the locknut onto the adapter sleeve.
- ▶ Lower the shaft.
- ▷ The bearing and adapter sleeve are mounted. The tab washer and locknut are mounted.




① Housing
② Shaft
③ Adapter sleeve
④ Bearing
⑤ Tab washer
⑥ Locknut
⑦ Shaft, lowered

*Figure 8*
Tab washer and locknut

## Locating the shaft

The shaft must not be allowed to rotate during mounting. Before the shaft is located using a suitable retaining device, the corresponding area must be degreased.

## Setting the clearance

The following accessories are required:

- retaining device for locating the shaft
- retaining gib for preventing co-rotation of the adapter sleeve
- waterproof felt pen for marking the position on the shaft.

### Tightening the locknut to the tightening torque

During tightening, it may be necessary to reposition the double hook wrench several times.

**NOTICE**

Locknut tightened to the incorrect torque due to incorrect hand position. This leads to incorrect setting of the bearing radial internal clearance and thus increased wear of the bearing.

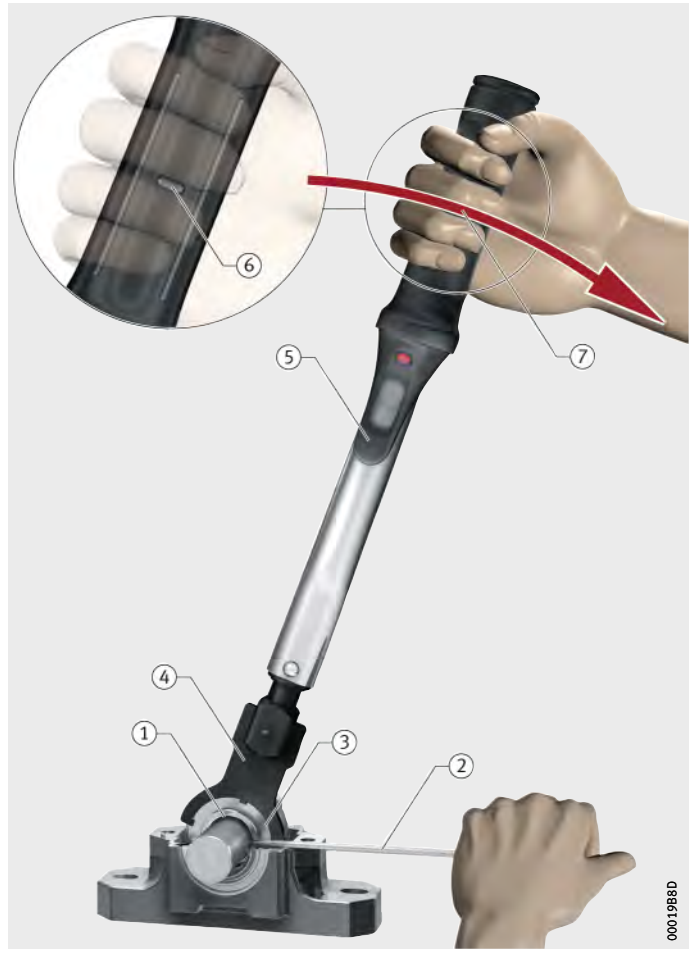
Use the torque with the correct hand position as shown.
The centre of the grip must be located between the ring finger and middle finger. ◁

Tightening the locknut to the tightening torque, *Figure 9*:

▶ Locate the adapter sleeve by means of the retaining gib.

▶ Tighten the locknut until the torque wrench is released.

▷ The locknut is now tightened to the tightening torque.




① Adapter sleeve
② Retaining gib
③ Locknut
④ Double hook wrench
⑤ Torque wrench
⑥ Marking of grip centre
⑦ Hand position

*Figure 9*
Tightening torque

**Marking of components**

Before marking the components, the double hook wrench is removed from the torque wrench. The double hook wrench is then fitted to the mounting lever. The locknut and adapter sleeve are marked before the locknut is tightened by the torsion angle. A waterproof felt pin is highly suitable for applying the marking.

Marking of components, *Figure 10*:

- ▶ Position the double hook wrench.
- ▶ At the mark for the angle 0, draw a line across the end faces of the locknut and the adapter sleeve.
- ▶ At the mark for the torsion angle, draw a line across the end faces of the locknut.
- ▷ The components are marked.

① Mark for angle 0
② Mark for torsion angle

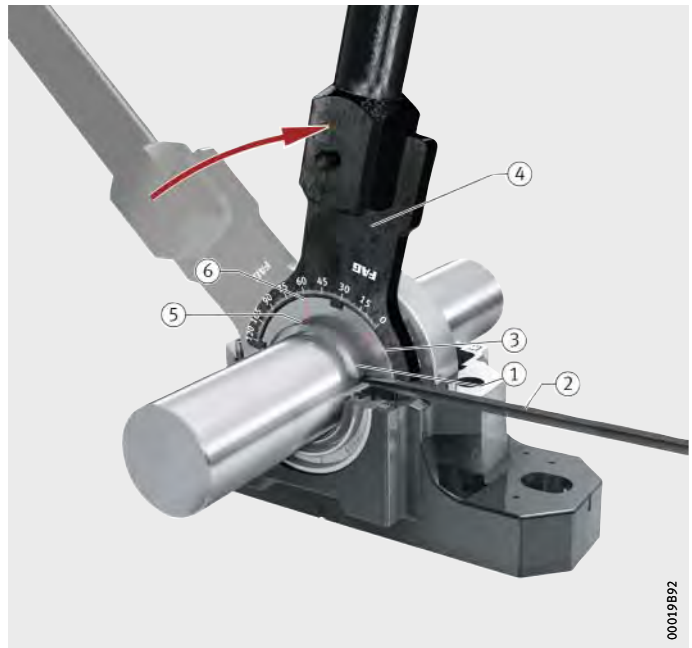
*Figure 10*
Marking

### Tightening the locknut by the torsion angle

The clearance is set by tightening the locknut by the torsion angle.

Tightening the locknut by the torsion angle, *Figure 11*:

- ▶ Locate the adapter sleeve by means of the retaining gib.
- ▶ Tighten the locknut until the mark for the torsion angle on the locknut and the mark for the angle 0 on the adapter sleeve coincide.
- ▷ The locknut is completely tightened and the clearance is set.




① Adapter sleeve
② Retaining gib
③ Locknut
④ Double hook wrench
⑤ Mark for angle 0 on adapter sleeve
⑥ Mark for torsion angle on locknut

*Figure 11*
Clearance set

**Securing the locknut**

The locknut is secured against rotation in order that the clearance set cannot change during operation.

**NOTICE**

Increased clearance in the bearing due to backwards rotation of the locknut, leading to increased wear of the bearing.

Never loosen the locknut, but tighten it slightly as necessary. ◁

Securing the locknut, *Figure 12*:

- ▶ If there is no tab opposite a slot: tighten the locknut slightly.
- ▶ Bend the tab of the tab washer into the slot in the locknut.
- ▷ The locknut is secured against rotation.

① Tab, bent over

*Figure 12*
Locknut secured

## Decommissioning

If the tool is no longer in use, the double hook wrench is removed from the mounting lever. Grease and any other contaminants should be wiped off the double hook wrench, mounting lever and torque wrench.

**NOTICE**

Damaged torque wrench due to storage with preload.
This leads to incorrect setting of the bearing radial internal clearance and thus increased wear of the bearing.

Set the tightening torque to the value 0, *Figure 13*.◁

① Torque wrench
② Tightening torque 0

*Figure 13*
Decommissioning

All parts should be stored under the specified conditions, see section *Storage*, page 4.

## Maintenance

The tool must be checked before every use.

**NOTICE**

Incorrect release of torque wrench due to lack of maintenance.
This leads to incorrect setting of the bearing radial internal clearance and thus increased wear of the bearing.

Check the torque wrench as stated in the maintenance plan and carry out maintenance as necessary. ◁

## Maintenance plan

The maintenance items are stated in the maintenance plan, see *tables*.

### Before every use

| Subassembly | Activity |
|---|---|
| Torque wrench | ☐ Visual inspection – check for damage<br>☐ Record the number of instances of use |
| Double hook wrench, mounting lever | ☐ Visual inspection – check for damage |

### As necessary

| Subassembly | Activity |
|---|---|
| Torque wrench | ☐ After 5 000 instances of use, carry out checking, maintenance as necessary and calibration<br>The inspection device to be used must fulfil the requirements in DIN EN ISO 6789:2003 |

## Disposal

The tool can be returned to Schaeffler for disposal.

**WARNING**

Danger of injury due to catapulting of components if the torque wrench is dismantled, since some parts are under spring loading.

Wear safety goggles if the torque wrench is to be dismantled. ◁

## Regulations

Disposal must be carried out in accordance with locally applicable regulations.

# Double hook wrenches

## Technical data and accessories

Technical data, standard accessories and special accessories, see *tables*.

### Torque wrenches

| Designation | Dimensions mm | Mass kg |
|---|---|---|
| **LOCKNUT-DOUBLEHOOK.WRENCH10-50NM** | 30×30×330 | 1,1 |
| **LOCKNUT-DOUBLEHOOK.WRENCH20-100NM** | 40×40×375 | 2,3 |

### Double hook wrenches

| Designation | Dimensions mm | Mass kg |
|---|---|---|
| **LOCKNUT-DOUBLEHOOK-KM3-D16** | 111×41×26 | 0,2 |
| **LOCKNUT-DOUBLEHOOK-KM4-D16** | 111×44×26 | 0,2 |
| **LOCKNUT-DOUBLEHOOK-KM5-D16** | 111×50×26 | 0,2 |
| **LOCKNUT-DOUBLEHOOK-KM6-D16** | 111×60×26 | 0,2 |
| **LOCKNUT-DOUBLEHOOK-KM7-D16** | 111×70×26 | 0,2 |
| **LOCKNUT-DOUBLEHOOK-KM8-D16** | 112×78×26 | 0,3 |
| **LOCKNUT-DOUBLEHOOK-KM9-D20** | 117×83×30 | 0,4 |
| **LOCKNUT-DOUBLEHOOK-KM10-D20** | 117×88×30 | 0,4 |
| **LOCKNUT-DOUBLEHOOK-KM11-D20** | 117×98×30 | 0,4 |
| **LOCKNUT-DOUBLEHOOK-KM12-D20** | 117×106×30 | 0,4 |
| **LOCKNUT-DOUBLEHOOK-KM13-D20** | 117×115×30 | 0,4 |
| **LOCKNUT-DOUBLEHOOK-KM14-D20** | 118×121×30 | 0,4 |
| **LOCKNUT-DOUBLEHOOK-KM15-D20** | 118×128×30 | 0,4 |

### Mounting levers

| Designation | Dimensions mm | Mass kg |
|---|---|---|
| **LOCKNUT-DOUBLEHOOK.LEVER400** | ∅22×400 | 0,8 |

### Adapters

| Designation | Dimensions mm | Mass kg |
|---|---|---|
| **LOCKNUT-DOUBLEHOOK.WRENCH-ADAPTER22-16** | ∅22×40 | 0,1 |

### Accessories

| Designation | Designation | Mass kg |
|---|---|---|
| **ARCANOL-MOUNTINGPASTE-70G** | Mounting paste | 0,1 |

Only use FAG original accessories.

## Appendix

This appendix contains conversion formulae for using a torque wrench not supplied by us.

## Conversion

The following symbols are used in the formula, *Figure 14*.

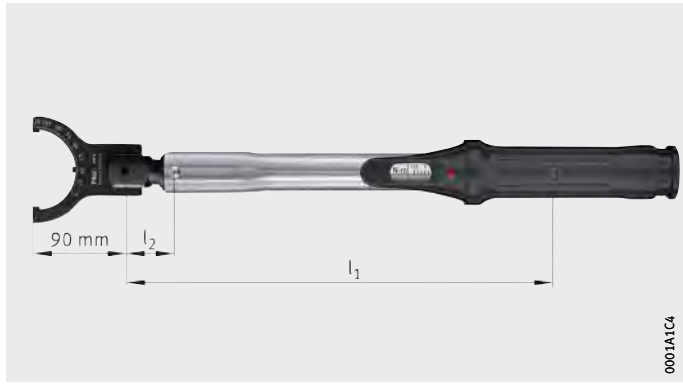



*Figure 14*
Conversion

**Torque to be set**

$$M_{A2} = \frac{M_A \cdot l_1}{90 + l_1 - l_2}$$

$M_{A2}$ Nm
Torque set on torque wrench

$M_A$ Nm
Tightening torque, see *tables* from page 11

$l_1$ mm
Distance between centre of locking pin and centre of grip

$l_2$ mm
Key dimension, see certificate for torque wrench.

# Notes

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